

CLAIMS

1. An optical film in which plural retardation films are laminated on one side of a polarizing plate, in which a transparent protective film is laminated on both sides of a polarizer, so that an absorption axis of the polarizing plate is perpendicular or parallel to slow axes of the plural retardation films and the slow axes of the plural retardation films are parallel to one another, wherein

an Nz value expressed by $Nz = (nx_1 - nz_1)/(nx_1 - ny_1)$ is in the range of from 0.15 to 0.85 and

an in-plane retardation Re_1 expressed by $Re_1 = (nx_1 - ny_1) \times d_1$ is in the range of from 200 to 350 nm,

where in each of the plural retardation films, a direction along with the refractive index in the film plane is maximum is defined as the X-axis, a direction perpendicular to the X-axis as the Y-axis, the thickness direction of the film as the Z-axis, and where refractive indices in each axial direction are defined as nx_1 , ny_1 , and nz_1 , respectively, and the thickness of the film as d_1 (nm),

and the transparent protective film comprises a thermoplastic saturated norbornene resin.

2. The optical film according to claim 1, wherein a retardation film (a) and a retardation film (b) are laminated in this order from the polarizing plate side, and the absorption axis of the polarizing plate is parallel to the slow axes of the two retardation films,

the retardation film (a) has an Nz value in the range of from 0.65 to 0.85, and

the retardation film (b) has an Nz value in the range of from 0.15 to 0.35.

3. The optical film according to claim 1, wherein a retardation film (b) and a retardation film (a) are laminated in this order from the polarizing plate side, and the absorption axis of the polarizing plate is perpendicular to the slow axes of the two retardation films,

the retardation film (a) has an N_z value in the range of from 0.65 to 0.85, and

the retardation film (b) has an N_z value in the range of from 0.15 to 0.35.

4. The optical film according to claim 2 or 3, wherein the absolute value of a difference in N_z value between the retardation film (a) and the retardation film (b) is in the range of from 0.4 to 0.6.

5. The optical film according to any one of Claims 1 to 4, wherein

an in-plane retardation expressed by $Re_2 = (n_{x2} - n_{y2}) \times d_2$ is 20 nm or less, and

a thickness direction retardation expressed by $R_{th} = \{(n_{x2} + n_{y2}) / 2 - n_{z2}\} \times d_2$ is 30 nm or less,

where in the transparent protective film laminated on at least one side of the polarizing plate, a direction along with the refractive index in the film plane is maximum is defined as the X-axis, a direction perpendicular to the X-axis as the Y-axis, the thickness direction of the film as the Z-axis, and where refractive indices in each axial direction are defined as n_{x2} , n_{y2} , and n_{z2} , respectively, and the thickness of the film as d_2 (nm).

6. A image viewing display comprising, the optical film according to any one of Claims 1 to 5.

**7. A liquid crystal display in IPS mode,
5 wherein the optical film according to any one of Claims 1 to 5 is arranged on a cell substrate on a viewing side,**

a polarizing plate comprising a transparent protective film laminated on both sides of a polarizer is arranged on a cell substrate opposite to the viewing side, and

10 an extraordinary refractive index direction of a liquid crystalline substance in a liquid crystal cell and an absorption axis of the polarizing plate are parallel, in a state where voltage is not applied.

**15 8. A liquid crystal display in IPS mode,
wherein a polarizing plate comprising a transparent protective film laminated on both sides of a polarizer is arranged on a cell substrate on a viewing side,**

20 the optical film according to any one of Claims 1 to 5 is arranged on a cell substrate opposite to the viewing side, and

an extraordinary refractive index direction of a liquid crystalline substance in a liquid crystal cell and an absorption axis of the optical film are perpendicular, in a state where voltage is not applied.

25 9. The liquid crystal display according to Claim 7 or 8, wherein the transparent protective film laminated on at least one side of the polarizing plate comprises a thermoplastic saturated norbornene resin.

10. The liquid crystal display according to any one of Claims 7 to 9, wherein

an in-plane retardation expressed by $Re_2 = (n_{x2} - n_{y2}) \times d_2$ is 20 nm or less, and

5 a thickness direction retardation expressed by $R_{th} = \{(n_{x2} + n_{y2}) / 2 - n_{z2}\} \times d_2$ is 30 nm or less,

where in the transparent protective film laminated on at least one side of the polarizing plate, a direction along with the refractive index in the film plane is maximum is defined as the X-axis, a direction perpendicular to the X-axis as the Y-axis, the
10 thickness direction of the film as the Z-axis, and where refractive indices in each axial direction are defined as n_{x2} , n_{y2} , and n_{z2} , respectively, and the thickness of the film as d_2 (nm).

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